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3639

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/832,438
Filing Date: April 10, 2001
Appellant(s): LIU ET AL.

MAILED
APR 26 2006
GROUP 3600

Mr. Peter B. Manzo
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 24 February 2006 appealing from the Office action mailed 27 October 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

WITHDRAWN REJECTIONS

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner. Claims 15, 17-29 and 31-42 no longer stand rejected under 35 U.S.C. § 101 as being directed towards non-statutory subject matter.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Smith, Pub. No. 2002/0091854 A1, 17 June 2001

Pappalardo, Denise. "ISPs Continue to Improve Internet Access SLAs" Network World, Vol. 18, Iss. 8 (Feb. 19, 2001), pp. 25

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims **1 and 3-14** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As per **Claims 1 and 3-14**, these claims recite a series of steps and are considered for the purpose of analysis under 35 U.S.C. 101 as reciting a series of steps. The claims do not recite an pre- or post-computer activity but merely perform a series of steps of calculating a total profit and allocating resources, and is directed to non-statutory subject matter. A process is statutory if it requires physical acts to be performed outside of the computer independent of and following the steps performed by a programmed computer, where those acts involve the manipulation of tangible physical objects and result in the object having a different physical attribute or structure (*Diamond v. Diehr*, 450 U.S. at 187, 209 USPQ at 8). Further, the claims merely manipulate an abstract idea (calculating profit and allocating resources) or perform a purely mathematical algorithm without limitation to any practical application. A process which merely manipulates an abstract idea or performs a purely mathematical algorithm is non-statutory despite the fact that it might have some inherent usefulness (*Sakar*, 558 F.2d at 1335, 200 USPQ at 139).

Furthermore, in determining whether the claimed subject matter is statutory under 35 U.S.C. 101, a practical application test should be conducted to determine whether a “useful, concrete and tangible result” is accomplished. See *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 1359-60, 50 USPQ2d 1447, 1452-53 (Fed. Cir. 1999); *State Street Bank & Trust*

Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1600 (Fed. Cir. 1998).

An invention, which is eligible or patenting under 35 U.S.C. 101, is in the “useful arts” when it is a machine, manufacture, process or composition of matter, which produces a concrete, tangible, and useful result. The fundamental test for patent eligibility is thus to determine whether the claimed invention produces a “use, concrete and tangible result”. The test for practical application as applied by the examiner involves the determination of the following factors”

(a) “Useful” – The Supreme Court in *Diamond v. Diehr* requires that the examiner look at the claimed invention as a whole and compare any asserted utility with the claimed invention to determine whether the asserted utility is accomplished. Applying utility case law the examiner will note that:

- i. the utility need not be expressly recited in the claims, rather it may be inferred.
- ii. if the utility is not asserted in the written description, then it must be well established.

(b) “Tangible” – Applying *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994), the examiner will determine whether there is simply a mathematical construct claimed, such as a disembodied data structure and method of making it. If so, the claim involves no more than a manipulation of an abstract idea and therefore, is nonstatutory under 35 U.S.C. 101. In *Warmerdam* the abstract idea of a data structure became capable of producing a useful result when it was fixed in a tangible medium, which enabled its functionality to be realized.

(c) “Concrete” – Another consideration is whether the invention produces a “concrete” result. Usually, this question arises when a result cannot be assured. An appropriate rejection under 35 U.S.C. 101 should be accompanied by a lack of enablement rejection, because the invention cannot operate as intended without undue experimentation.

The claims, as currently recited, appear to be directed to nothing more than a series of steps including allocating resources, calculating and subtracting data which is nothing more than manipulating numbers without any useful, concrete and tangible result and are therefore deemed to be non-statutory. While these numbers may be concrete and/or tangible, there does not appear to be any useful result.

Claims 1, 3-15, 17-29, 31-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith, Pub. No. US2002/0091854 A1 in view of Pappalardo, “ISPs continue to improve Internet access SLAs”, hereinafter referred to as Pappalardo.

As per Claims 1, 3, 15, 17, 29 and 31, Smith discloses method of allocating resources of a computing system to hosting of a data network site to thereby maximize generated profit, comprising:

- calculating a total profit for processing requests received by the computing system for the data network site based on at least one service level agreement (Paras. 13-16); and
- allocating resources of the computing system to maximize the total profit (Paras 13-16).

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Nonetheless, Smith fails to disclose a method wherein calculating a total profit includes, for each request received by the computing system for the data network site, determining whether processing of the request generates a revenue or a penalty, wherein a revenue is generated when an allocation of resources is such that the request is processed in accordance with the service level agreement and a penalty is generated when the allocation of resources is such that the request is not processed in accordance with the service level agreement, and wherein the total profit is obtained by subtracting the penalty from the revenue for each request.

However, Pappalardo teaches generating revenue by charging the customer a fee for processing the request according to the service level agreement and generating a penalty when the request is not processed according to the service level agreement (Lines 28-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the method of Smith and include generating revenue by determining if the processing of the request generates a profit or a penalty based on the service level agreement as taught by Pappalardo because penalizing the service provider when the request is not processed according to the SLA will greatly improve the service provider's ability to supply enhanced performance therefore generating greater profits.

As per **Claims 4, 18 and 32**, Smith further discloses a method wherein the requests are classified into one or more classes of requests and each class of request has a corresponding service level agreement from the at least one service level agreement (Para. 63, 66).

As per Claims 5, 19 and 33, Smith further discloses a method wherein allocating resources includes determining an optimal traffic assignment for routing requests to thereby maximize the total profit (See Claim 1).

As per Claims 6, 20 and 34, Smith further discloses a method wherein the computing system is a web server farm and wherein the resources are servers of the web server farm, wherein each server of the web server farm accommodates a different set of classes of requests (Para. 34, 63; and See Claim 11).

As per Claims 7, 21, and 35, Smith further discloses a method further comprising determining an optimum resource allocation to maximize the total profit (See Claim 1).

As per Claims 8, 22 and 36, Smith discloses a method wherein determining an optimum resource allocation includes:

- modeling the resource allocation as a queuing network;
- decomposing the queuing network into separate queuing systems; and
- summing cost calculations for each of the separate queuing systems

(Para. 13, 13, 40, and 53).

Nonetheless, Smith fails to disclose wherein summing cost calculations includes summing profits and penalties of each of the separate queuing systems. However, Pappalardo teaches summing profits and penalties of each of the systems (Lines 28-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify the

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method of Smith and include determining the costs by calculating the profits and penalties of each of the systems as taught by Pappalardo because penalizing the service provider can greatly improve service and therefore reduce costs.

As per **Claims 9, 23 and 37**, Smith further discloses a method further comprising optimizing the summed cost calculations to maximize generated profit and thereby determine an optimum resource allocation (Para. 13-16, See Claim 1).

As per **Claims 10, 24 and 38**, Smith further discloses a method wherein allocating resources includes determining an optimum traffic assignment and an optimum generalized processor sharing coefficient for a class of requests (Para. 66).

As per **Claims 11, 25 and 39**, Smith further discloses a method wherein allocating resources includes optimizing a cost function associated with a class of requests (Para. 16).

As per **Claims 12, 26 and 40**, Smith further discloses a method wherein optimizing the cost function includes modeling the optimization as a network flow from a source, through sink representing sites/classes of requests and servers/classes of requests, to a supersink (Para. 16, 66).

As per **Claims 13, 27 and 41**, Smith further discloses a method decomposing the queuing network into separate queuing systems includes decomposing the queuing network into decomposed models for each class in a hierarchical manner (Para. 63, 66).

As per **Claims 14, 28 and 42**, Smith further discloses a method wherein a decomposed model for class K is based on a decomposed model of classes 1 through k-1 (Para. 16, 63-66).

(10) Response to Argument

First Issue

Regarding the 35 U.S.C. § 101 rejection outlined in the above, Appellant asserts that the data processing system allocated resources of the computing system for each request received by determining whether a profit or penalty is generated for each request according to the service level agreement has practical application. Examiner notes that allocation of resources of the computing system based on a service level agreement is non-statutory. Taking the broadest interpretation, allocation is the mere act of allotting or assigning, as defined in Webster's dictionary. In order for allocating to be statutory the result would require the physical distribution of resources and not the simple act of assigning which resources are to be operated, which may be carried out mentally without any useful, concrete or tangible result. The Appellant's specification lacks a definition that would otherwise state allocating to be anything other than the mental assigning of which resource to be operated.

Appellant's arguments regarding the interrelationship between the preamble and the body of the claim are convincing. Examiner withdraws the 35 U.S.C. § 101 rejection corresponding to the preamble and the body of the claim.

Second Issue

Appellant argues that the combination of Smith and Pappalardo would not reach the presently claimed invention recited in these claims. Examiner notes that the Smith reference is directed to a method for operating a service provider that provides Internet services for businesses operating web sites or other applications that generate e-commerce transactions for the business (Abstract). Smith further discloses allocating resources based upon demand for Internet access. Furthermore, the Pappalardo reference is directed to improving service level agreements by penalizing the service provider when the agreed upon level of service has not been met. The profit (access fees less penalties and credits) the service provider receives from providing Internet access to the business is based upon the service level agreement. Therefore, when the Smith reference and the Pappalardo reference are combined the result teaches Appellant's invention. The Examiner's response to the Appellant's arguments will be better understood below in light of the Examiner's response to arguments.

Appellant argues that Smith does not teach or suggest that allocation of computing system resources are based on whether each request received by the computing system generates a revenue or penalty in accordance with the service level agreement. Examiner notes that Smith discloses allocating servers and resources on an as-needed basis to the web sites and applications of the business in response to the immediate demand for Internet access to those web sites and

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applications. Examiner further notes that “as-needed” is interpreted to mean many reasons. For example, the fundamental principle of business is to maximize profit. The greater demand for Internet access in Smith would generate additional profit for the service provider and therefore allocating resources to meet the greater demand would maximize profit. Moreover, Smith discloses that the business is not locked into a given capacity, according to their service level agreement, therefore it is not necessary for the business to waste scarce financial resources by scaling its service capacity in order to handle a small number of peak access times. When the service provider allocates resources to meet the greater demand by the business, the service provider increases profit by charging for the additional resources (Para. 13-16).

Appellant argues that Smith does not disclose that allocation of computing system resources are based on whether each request received by the computing system generates a revenue or penalty in accordance with the service level agreement. Appellant also argues that Smith does not disclose determining whether processing of the request generates a revenue or a penalty, wherein a revenue is generated when an allocation of resources is such that the request is processed in accordance with the service level agreement. Further, Appellant argues that Pappalardo does not teach allocating resources of the computing system to maximize the total profit. Lastly, Appellant argues that Pappalardo does not teach allocating resources of the computing system to maximize the total profit. Examiner does not rely on Smith to teach allocation of computing system resources are based on whether each request received by the computing system generates a revenue or penalty in accordance with the service level agreement. Also, Examiner does not rely on Smith to teach determining whether processing of the request generates a revenue or a penalty, wherein a revenue is generated when an allocation of resources

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is such that the request is processed in accordance with the service level agreement. Examiner relies on Pappalardo to teach the above limitations as stated in Final Office Action dated 27 October 2005. Moreover, Examiner relies upon Pappalardo to teach generating revenue by charging the business a fee for processing the request according to the service level agreement and generating a penalty when the request is not processed according the service level agreement. In response to Appellant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Appellant argues that Pappalardo does not teach determining a revenue or penalty for each request. Examiner notes that when the service provider fails to process the business service request according to the service level agreement a penalty is generated. The penalty in Pappalardo is a credit that is given to the business, which is based on the monthly access service fee; therefore the revenue is determined by subtracting the credit from the service fee. Pappalardo also teaches providing a business with access service installation according to a service level agreement. However, if the service provider fails to finish the installation within a predetermined time period, the customer does not have to pay the installation fee, therefore when the request is not processed according to the service level agreement a penalty is generated. If the request is processed according to the service level agreement a revenue is generated from the service fees (Lines 28-46). Pappalardo also teaches service providers allocating resources in order to meet service level agreements by increasing their maximum allowable latency SA for

dedicated Internet access customers. Service providers allocate resources in order to meet service level agreements in order to refrain from issuing credits to customers (Entire Document).

Appellant argues that neither Smith or Pappalardo teach a cost model in which profit is gained for each request to the data network site that is processed in accordance with a service level agreement and a penalty is paid for each request to the data network site that is not processed in accordance with the service level agreement. Smith discloses a tier system (i.e. cost model) wherein profit is generated for each request by the business. Pappalardo teaches a penalty (i.e. credit) is paid for each request to the data network site that is not processed according to the service level agreement. Therefore, the combination of Smith and Pappalardo teach the limitations of claims 3, 17 and 31.

Appellant argues that Pappalardo does not teach summing cost calculations includes summing profits and penalties of each of the separate queuing systems. Examiner notes that Pappalardo teaches summing the packet loss for a dedicated T-1 line, and based on the amount of packet loss summing the amount of the credit. Therefore, seeing as the profit is the access service fee less the credit, the sum of the profit is determined by the amount of the penalty (Lines 28-32).

As noted above, the Smith reference discloses calculating profit for the service provider and allocating resources to maximize profit (Paras. 13-16); while the Pappalardo reference teaches determining if the business request generates a profit or a penalty for the service provider (Entire Document). Therefore, when combined the Smith and Pappalardo references teach each of the limitations of the Appellant's invention.

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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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